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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/856,331

05/17/2001

Eric D. Schneider

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EXAMINER

PANNALA, SATHYANARAYA R

ART UNIT

PAPER NUMBER

2177

DATE MAILED: 02/26/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

6

**Office Action Summary**

Application No.

09/856,331

Applicant(s)

SCHNEIDER, ERIC D.

Examiner

Sathyanarayan Pannala

Art Unit

2177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 May 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

1. Preliminary Amendment filed on 5/17/2001 by Applicant and cancelled claims 7-8 and amended claims 1-6. As per this Office Action the claims 1-6 and 9 pending.

### *Drawings*

2. The drawings are objected to because they fail to show necessary textual labels of features or symbols in Figs. 3a-e as described in the specification. For example, placing labels, "Disk page" and "File", below the "disk contents" label of Fig. 3a, would give the viewer necessary detail to fully understand this element at a glance. A ***descriptive*** textual label for ***each numbered element*** in these figures would be needed to fully and better understand these figures without substantial analysis of the detailed specification. Any structural detail that is of sufficient importance to be described should be shown in the drawing. Optionally, applicant may wish to include a table next to the present figure to fulfill this requirement. See 37 CFR 1.83. 37 CFR 1.84(n)(o) is recited below:

"(n) Symbols. Graphical drawing symbols may be used for conventional elements when appropriate. The elements for which such symbols and labeled representations are used must be adequately identified in the specification. Known devices should be illustrated by symbols which have a universally recognized conventional meaning and are generally accepted in the art. Other symbols which are not universally recognized may be used, subject to approval by the Office, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable.

(o) Legends. Suitable descriptive legends may be used, or may be required by the Examiner, where necessary for understanding of the drawing, subject to approval by the Office. They should contain as few words as possible."

3. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

### ***Claim Objections***

5. Claims 1,3-6 are objected to because of the following informalities:

The claims cannot contain special characters like "- ", " 's ". Examiner suggests removing all special characters.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the

prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made."

7. Claims 1-6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stockman et al. (U.S. Patent 5,778,392) and in view of Cohen (US Patent 5,761,680).

8. Stockman rendered the independent claim 1 by the following:

"determining what pages should be swapped among the various allocations made by an operating system (OS), the OS's file system mapping updated to reflect the swapped pages and a history of the original state prior to any update recorded by an engine, wherein the swaps performed by manipulation of the engine's data structures and/or actually exchanging data on the disk where OS visible data is read and written but the original state of each altered page is not directly recorded in a historic log, but instead, a record is additionally logged of the locations of the swapped data so that an image of the OS visible data can be reconstructed prior to the time of the de-fragmentation by knowing what data to effectively re-swap and what OS mapping data to effectively restore" (at Fig. 3-4, col. 12, line 25, to col. 14, line 27). Stockman first loads the tile-reorganizing (swap pages) program is loaded into system memory (140). The program identifies and cooperates with the predefined goal tile map (349). As an example, the program instructs system processing unit to rearrange the tiles (swap pages) using an opportunistic vacancy-fill (OVF) method. The OFV method produces the tile arrangement in file storage (159). Stockman teaches

step by step the procedure as: identifying reorganizing storage space (159), subdividing the storage space into plurality of tile spaces (swap pages). Then identifying an already existing vacant space within reorganizing space. Moving into the identified vacancy space one or more source tiles from the identified files. Designating the source locations as vacancy space and then updating the directory structure (151) to reflect the new structure. After achieving the goal state the free space is considered as free space created or deleted as a result of the tile moves. Stockman explicitly does not teach defragmentation program is executed by the operating system. However, Cohen teaches WIN32 windows subsystem that executes the defragmentation application program (see at Fig. 1, col. 4, lines 28-31). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate inputting relevant information to view image objects. Stockman and Cohen are combined as they teach disk defragmentation and to relate defragmentation application is a part of operating system. In order to enable the operating system to properly access the new locations of defragmented files, the software utility usually updates file system structures.

9. As per dependent claim 2, Stockman teaches "the method is performed on a computer wherein a history of data is maintained such that the computer can be returned to a state of data from an earlier point in time" (at Fig. 3, col. 14, lines 56-61). Stockman teaches storing the original tile map (351) before storage space (159) reorganization.

10. As per dependent claim 3, Cohen teaches "including the step of incorporating desired close proximity information of various OS visible pages into an algorithm executed by the engine that determines what is actually swapped, in order to reasonable maintain physical close proximity of data allocated by the OS but physically re-mapped by the engine" (at Fig. 1, col. 4, lines 28-34). Cohen teaches disk defragmentation application program (engine) for WIN 32 subsystem that optimizes the performance of the disk drive.

11. As per dependent claim 4, Stockman teaches "the method is performed on a computer wherein a history of data is maintained such that the computer can be returned to a state of data from an earlier point in time" (at Fig. 1, col. 2, lines 33-44). Stockman teaches as if for some reason during or end of the tile reorganization (swap pages) the original tile map (351) could be renamed as the goal tile map and copy 349' as the original tile map and instruct the program to process.

12. Cohen anticipated independent claim 5 by the following:

"determining what pages should be swapped among the various allocations made by an operating system (OS), the OS's file system mapping updated to reflect the swapped pages and a history of the original state prior to any update recorded by an engine, wherein the swaps are performed by one of manipulation of the engine's data structures and actually exchanging data on the disk where OS visible data is read and written, but the original state of each altered page is not directly recorded in a historic log, but instead, a record is additionally logged of the locations of the swapped data so that an image of the OS visible data can

be reconstructed prior to the time of the de-fragmentation by knowing what data to effectively re-swap and what OS mapping data to effectively restore" (at Fig. 3-4, col. 12, line 25, to col. 14, line 27). Stockman first loads the tile-reorganizing (swap pages) program is loaded into system memory (140). The program identifies and cooperates with the predefined goal tile map (349). As an example, the program instructs system-processing unit to rearrange the tiles (swap pages) using an opportunistic vacancy-fill (OVF) method. The OVF method produces the tile arrangement in file storage (159). Stockman teaches step by step the procedure as: identifying reorganizing storage space (159), subdividing the storage space into plurality of tile spaces (swap pages). Then identifying an already existing vacant space within reorganizing space. Moving into the identified vacancy space one or more source tiles from the identified files. Designating the source locations as vacancy space and then updating the directory structure (151) to reflect the new structure. After achieving the goal state the free space is considered as free space created or deleted as a result of the tile moves. Stockman explicitly does not teach defragmentation program is executed by the operating system. However, Cohen teaches WIN32 windows subsystem that executes the defragmentation application program (see at Fig. 1, col. 4, lines 28-31). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate inputting relevant information to view image objects. Stockman and Cohen are combined as they teach disk defragmentation and to relate defragmentation application is a part of operating



system. In order to enable the operating system to properly access the new locations of defragmented files, the software utility usually updates file system structures.

13. Cohen anticipated independent claim 6 by the following:

"determining what pages should be swapped among the various allocations made by an operating system (OS), the OS's file system mapping updated to reflect the swapped pages and a history of the original state prior to any update recorded by an engine, wherein the swaps are performed by one of manipulation of the engine's data structures and actually exchanging data on the disk where OS visible data is read and written, but the original state of each altered page is not directly recorded in a historic log, but instead, a record is additionally logged of the locations of the swapped data so that an image of the OS visible data can be reconstructed prior to the time of the de-fragmentation by knowing what data to effectively re-swap and what OS mapping data to effectively restore" (at Fig. 3-4, col. 12, line 25, to col. 14, line 27). Stockman first loads the tile-reorganizing (swap pages) program is loaded into system memory (140). The program identifies and cooperates with the predefined goal tile map (349). As an example, the program instructs system-processing unit to rearrange the tiles (swap pages) using an opportunistic vacancy-fill (OVF) method. The OFV method produces the tile arrangement in file storage (159). Stockman teaches step by step the procedure as: identifying reorganizing storage space (159), subdividing the storage space into plurality of tile spaces (swap pages). Then

identifying an already existing vacant space with in reorganizing space. Moving into the identified vacancy space one or more source tiles from the identified files. Designating the source locations as vacancy space and then updating the directory structure (151) to reflect the new structure. After achieving the goal state the free space is considered as free space created or deleted as a result of the tile moves. Stockman explicitly does not teach defragmentation program is executed by the operating system. However, Cohen teaches WIN32 windows subsystem that executes the defragmentation application program (see at Fig. 1, col. 4, lines 28-31). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate inputting relevant information to view image objects. Stockman and Cohen are combined as they teach disk defragmentaion and to relate defragmention application is a part of operating system. In order to enable the operating system to properly access the new locations of defragmented files, the software utility usually updates file system structures;

“incorporating desired close proximity information of various OS visible pages into an algorithm executed by the engine that determines what is actually swapped, in order to reasonably maintain physical close proximity of data allocated by the OS but physically re-mapped by the engine” (at Fig. 1, col. 4, lines 28-34). Cohen teaches disk defragmentation application program (engine) for WIN 32 subsystem that optimizes the performance of the disk drive.

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14. As per dependent claim 9, Stockman teaches "the historical data is maintained by diverting writes to a different position on the disk so historical data remains in its original location" at Fig. 1,3, col. 14, lines 62-67. Stockman teaches that the storage (130') may further store a copy of (369) as well as a copy of (361) of the disk directory (151) before start of the reorganization. It is inherent that if the copies of every reorganization can be stored or retained for future use.

### ***Conclusion***

15. The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

16. If a reference indicated, as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose telephone number is (703) 305-9601 for faster service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (703) 305-3390. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*SRP*  
Sathyanarayan Pannala  
Examiner  
Art Unit 2177

srp  
February 23, 2004

  
GRETA ROBINSON  
PRIMARY EXAMINER